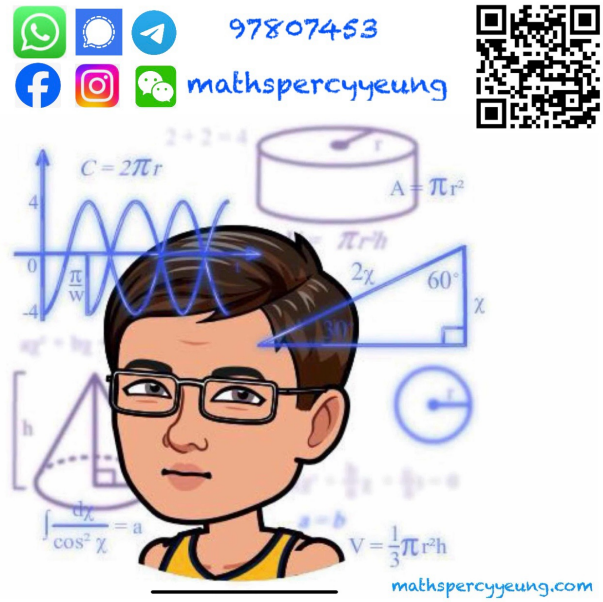
2024-2025 S1
1st TERM UT1
MATH



2024 – 2025
S1 First Term Uniform Test 1

MATHEMATICS

Question–Answer Book

1st November, 2024
8:15 am – 9:15 am (1 hour)

This paper must be answered in English

INSTRUCTIONS

1. Write your name, class and class number in the spaces provided on this cover.

2. Attempt ALL questions in this paper. Write your answers in the spaces provided in this Question – Answer Book.

3. Unless otherwise specified, all working must be clearly shown.

4. The diagrams in this paper are not necessarily drawn to scale.

5. NO calculator is allowed.

Sections	Marks
A Total	**/50**
B Total	**/20**
TOTAL	**/70**

Section A (50 marks)

1. Write down the answer clearly. No working step is required. (7 marks)

	Question	***Answer***
(a)	Write down the first 3 multiples of 37.	
(b)	Use index notation to express 99.	
(c)	Find the difference between the largest even number and the smallest odd number from 100 to 200.	
(d)	Convert 1.68 into improper fraction.	
(e)	Write down the largest number which is divisible by 6 and smaller than 522 105.	
(f)	Represent the word phrase 'Subtract 2*b* from 9' by algebraic expression.	
(g)	Arrange the following set of numbers in ascending order using the symbol '<'. $-3, \quad -\frac{13}{4}, \quad -3\frac{1}{2}$	

2. **(a)** Use index notation to express 250.

(b) Find the L.C.M. of 75 and 250 by prime factorization.

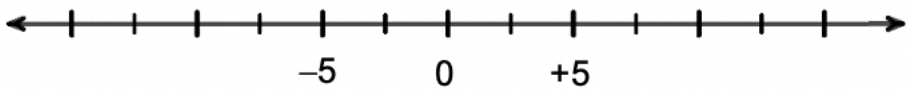
(c) Find the L.C.M. and H.C.F. of 25, 75 and 95 by short division. (8 marks)

3. Sammy buys 15 cakes and 9 lemon tarts. Each cake costs \$7.5 and each lemon tart costs \$9. If she pays \$200, find the amount of change she receives. (3 marks)

4. The general term T_n of a sequence is $\frac{2n-5}{10-n}$. Find the 7th term and the 13th term in the sequence. (4 marks)

5. Mark and label the following numbers on the number line below. (4 marks)

$+2\frac{1}{2}$, -7.5, $+10$, $-12\frac{3}{6}$



6. Suppose that a positive number means a profit. (3 marks)

(a) Use a directed number to represent

(i) a profit of \$15 000,

(ii) a loss of \$22 000.

(b) What does –\$13 500 mean in this situation?

7. Find the values of the following expressions. (7 marks)

(a) $-4+5-(-3.3)$

(b) $\left(\frac{-1}{5}+\frac{-2}{5}\right)\times 35-34$

(c) $\frac{3-(-3^2)}{(-2)^3}$

8. Simplify the algebraic expressions.

(a) $m \times (-n) \times m \div (-2) \times 5m$

(b) $6b + a - (b - 3b) + a^2$ (6 marks)

9. Solve the following equations. (8 marks)

(a) $6 - f = 2f$

(b) $-6(4 - b) = 2b$

(c) $\frac{3x}{4} = \frac{x+2}{6}$

Section B (20 marks)

10. Julia works x hours at the restaurant every day. She earns \$40 every working hour. Tom works y hours at the restaurant every day. He earns \$50 every working hour. Assume Julia and Tom work every day from June to August.

(a) How many days are there from June to August? (2 marks)

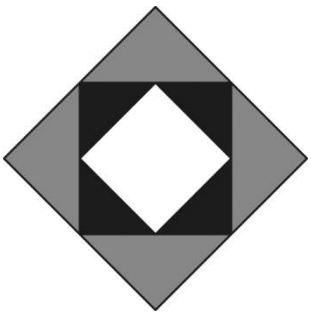
(b) If Julia works 10 hours at the restaurant every day, how much can she earn each day? (2 marks)

(c) **(i)** Express the money earned by Julia from June to August in terms of x.

(ii) Express the money earned by Tom from June to August in terms of y. (3 marks)

(d) If Julia and Tom work 5 hours and 2 hours every day from June to August respectively, can they earn more than \$30 000 in total? Explain your answer. (3 marks)

11. James, Ken and Leo participate in a dart-throwing game. They throw 12 darts to the dartboard as shown below respectively.



The score obtained by each dart follows the following scoring rules:

Region	Score
Grey	+4
Black	+6
White	+4
Out of the dartboard	–8

The one who obtains the highest score will win the game.

(a) Among the 12 darts thrown by James, 3 hits the grey region, 2 hits the black region, 3 hits the white region and the rest of the darts are out of the dartboard.

(i) Find the total score obtained by James. (3 marks)

(ii) If both Ken and Leo have 5 darts hitting out of the dartboard, will James be the winner of the game? Explain your answer. (3 marks)

(b) Now, Amy joins the game. Among the 12 darts thrown by Amy, x hits the grey region, 1 hits the white region, 6 are out of the dartboard, and the rest of the darts hits the black region.

(i) Express the number of darts hitting the black region in terms of x. (1 mark)

(ii) If Amy's final score is -18, find the number of darts hitting the grey region. (3 marks)

END OF PAPER